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Date: November 17, 2006

Reviewed by: [Signature] (RSCR)

Date: 11/17/06

Approved by: [Signature] FOR DIL  
(C-A Dept. Chairman)

Date: 11/20/06

## TTB Radiation Safety Checklist (C or heavier)

November 17, 2006

Beam should not be delivered from Tandem to the Booster at the beginning of a yearly run cycle until the following checklist is completed. Beams with mass < 12 amu should not be delivered to TTB without the completion of an additional RSC-approved checklist.

TTB Beamstops should be inserted and locked until completion of the checklist items. (If necessary, equivalent devices and/or procedures may be substituted with appropriate LP or RSC approval.

Booster TTB beam stop enable key switch LOTO'd (Building 914):

Tag No. _____	Lock No. _____
Person _____	Date _____

TTB beam (11BS10 & 11BS40) LOTO'd (Building 901A):

Tag No. _____	Lock No. _____
Person _____	Date _____

\_\_\_\_ (TOC) Functional check of Tandem primary interlocks is current.

\_\_\_\_ (ACG) Functional check of TTB interlocks complete.

\_\_\_\_ (ACG) Functional check of Tandem redundant interlocks complete

\_\_\_\_ (TOC) All Tandem and TTB radiation monitor calibrations current.

\_\_\_\_ (RCD) Gates/doors inspected and properly posted:

- Tandem control room / accelerator room
- Mechanical Equipment Room / Accelerator Room
- Mechanical Equipment room basement to MP-6 basement
- Target Room 1
- Target Room 2
- Target Room 4
- Target Room 4 / Accelerator Room labyrinth
- TTB / Accelerator Room entrance
- HITL House 1 / TTB gate

- j. HITL House 2 / TTB gate
- k. HITL House 3 / TTB gate

Signs a,b and h – Radiation Area with Rotating Beacon on  
Sign c – Radiation area with beam on, contact Tandem control room  
for beam status.

Signs d,e,f – Controlled area

Signs g,i,j and k – Radiation Area with Beam on, Contact Tandem Control  
Room for beam status.

- \_\_\_\_ (LPT) Beamstops in place and functioning:
  - a. MP6 LE
  - b. MP7 LE
  - c. 11FC10
  - d. 11FC40
  - e. 27-154
- \_\_\_\_ (RCD) The fence around TTB escape hatch at Section 19/20 is in place,  
and posted. (Controlled Area)
- \_\_\_\_ (RCD) The roof of HITL 2 house is posted. (Controlled area, TLD required)
- \_\_\_\_ (ACG) A chipmunk is in place near the gate in HITL house 2 as a local area monitor.
- \_\_\_\_ (TOC) TTB shielding is intact and has not been modified.
- \_\_\_\_ (TOC) The Tandem VDG shielding is intact and has not been modified.
- \_\_\_\_ (LPT) Tandem operators have been notified of the administrative limit of 12.5 MV terminal  
voltage set for Carbon beam into TTB.
- \_\_\_\_ (ACG) Bypass switches on all chipmunks have been checked.
- \_\_\_\_ (LPT) TTB is ready for beam.
- \_\_\_\_ (OC) All above TTB radiation safety checklist items have been initialed as complete.

### List of TVDG Chipmunks

CHIPMUNK	LOCATION	ALARM LEVEL	INTERLOCK LEVEL
135	MP 6 LE	na	2.5
136	MP 6 HE	na	2.5
45	MP 7 LE	na	2.5
134	Bypass Mid	na	2.5
81	MP 7 HE	na	20.0
132	TR 2 – Whatman	na	2.5
55	TR 2 upstream	na	2.5
133	TR 4 – SEU	na	2.5
47	TtB – south	30	50 (1)
53	TtB – north	30	50 (1)

Note (1) Interlocked only when LIGHT ION MODE is enabled.

**Once the above checklist is complete, the TTB beamstops should still remain LOTO'd closed until the Booster Radiation Safety Checklist has been completed.**

ACG C-A Access Controls Group (J. Reich, or designee)  
 LPT Liaison Physicist for the TVDG (J. Alessi, or designee)  
 OC MCR Operations Coordinator  
 RCD Radiation Controls Division (P. Bergh, or designee)  
 RSCR Radiation Safety Committee Representative (D. Beavis, or designee)  
 TOC Tandem Operations Coordinator (C. Carlson, or designee)